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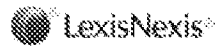
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522535 (09) 6541021 April 1, 2003

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April 1, 2003

Devices and methods for pain management

**INVENTOR:** Johnson, Randolph Mellus - Half Moon Bay, California, United States (US); Theeuwes, Felix - Los Altos Hills, California, United States (US)

**APPL-NO:** 522535 (09)

**FILED-DATE:** March 10, 2000

**GRANTED-DATE:** April 1, 2003

**ASSIGNEE-PRE-ISSUE:** June 27, 2000 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).. DURECT CORPORATION 10240 BUBE

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Patent Number :

US6541021 B1 20030401 [US6541021]

Title :

(B1) Devices and methods for pain management

Patent Assignee :

(B1) DURECT CORP (US)

Patent Assignee :

Durect Corporation, Cupertino CA [US]

Inventor(s) :

(B1) JOHNSON RANDOLPH MELLUS (US); THEEUWES FELIX (US)

Application Nbr :

US52253500 20000310 [2000US-0522535]

Priority Details :

US52253500 20000310 [2000US-0522535]

US12558999P 19990318 [1999US-P125589]

Intl Patent Class :

(B1) A61F-002/00 A61F-013/00 A61K-009/22 A61K-009/24 A61N-043/42

IPC Advanced All :

A61K-009/00 [2006-01 A - I R M EP]; A61K-009/22 [2006-01 A - I R M US];  
A61K-031/4468 [2006-01 A - I R M EP]; A61K-031/4535 [2006-01 A - I R M  
EP]; A61K-047/10 [2006-01 A - I R M EP]; A61K-047/14 [2006-01 A - I R M  
EP]; A61K-047/26 [2006-01 A - I R M EP]

IPC Core All :

A61K-009/00 [2006 C - I R M EP]; A61K-009/22 [2006 C - I R M US];  
A61K-031/4468 [2006 C - I R M EP]; A61K-031/4523 [2006 C - I R M EP];  
A61K-047/10 [2006 C - I R M EP]; A61K-047/14 [2006 C - I R M EP];  
A61K-047/26 [2006 C - I R M EP]

EPO ECLA Class :

A61K-009/00M5D  
A61K-031/4468  
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A61K-047/14  
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ORIGINAL (O) : 424422000; CROSS-REFERENCE (X) : 424423000 424424000  
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Document Type :

Basic

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Publication Stage :

(B1) U.S. Patent (no pre-grant pub.) after Jan. 2, 2001

Abstract :

The invention features devices and methods for the systemic delivery of fentanyl or a fentanyl congener (e.g., sufentanil) to treat pain. In the present invention, a drug formulation comprising fentanyl or a fentanyl congener is stored within a drug delivery device (e.g., contained in a reservoir or impregnated within a matrix within the controlled drug delivery device). The drug formulation comprises an amount of drug sufficient for treatment and is stable at body temperatures (i.e., no unacceptable degradation) for the entire pre-selected treatment period. The drug delivery devices store the drug formulation safely (e.g., without dose dumping), provide sufficient protection from bodily processes to prevent unacceptable degradation of the formulation, and release the drug formulation in a controlled fashion at a therapeutically effective rate to treat pain. In use, the drug delivery device is implanted in the subject's body at an implantation site, and the drug formulation is released from the drug delivery device to a delivery site. The delivery site may be the same as, near, or distant from the implantation site. Once released at the delivery site, the drug formulation enters the systemic circulation and is transported to the site of action in the body to modulate the pain response (e.g., the brain or other pain sensory location).

Update Code :

2003-15

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Patent Number :

US6541021 B1 20030401 [US6541021]

Application Number :

US52253500 20000310 [2000US-0522535]

Action Taken :

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DATE: 20000606

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Update Code :  
2004-29